STRUCTURE 37B

This structure is a reinforced concrete, gated spillway with discharge controlled by two stem operated, vertical lift gates. Operation of the gates is automatically controlled so that the gate operating system opens or closes the gate in accordance with the seasonal operational criteria. The structure is located on Canal 14, 3300 feet south of the intersection of C-14 and the Pompano Canal.

PURPOSE

This structure maintains optimum upstream water control stages in Canal 14; it passes the design flood (40% and 60% of the Standard Project Flood from the western and eastern portions of the drainage area, respectively) without exceeding the upstream flood design stage, and restricts downstream flood stages and channel velocities to non-damaging levels; and it prevents saline intrusion.

OPERATING CRITERIA

This structure is normally operated to maintain an optimum water surface elevation of 7.0 feet insofar as possible. The normal automatic operation is actuated by the headwater elevation as follows:

When the headwater elevation rises to 7.2 feet, the gates begin to open at six inches per minute. The amount of opening is described below.

When the headwater elevation rises or falls to elevation 7.0 feet, the gates become stationary.

When the headwater elevation falls to 6.8 feet, the gates begin to close.

The automatic operating mechanism positions the gate in such a way that the gate opening is inversely proportional to the headwater elevation. The non-linear relationship between the gate opening and the headwater elevation is such that the design discharge is the maximum that will pass the structure. Greater flows reaching the structure are retained in storage. Should the storage be insufficient to retain the entire inflow, either the structure will be overtopped, or control must be placed on manual operation and flows larger than the capacity released.

Closing level raised from 6.5 to 6.8 feet to provide irrigation water for golf course.

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During dry periods, the headwater elevation at the structure may be raised for water conservation.

When the headwater elevation rises to 8.0 feet, the gates begin to open at six inches per minute. The amount of opening is described below

When the headwater elevation rises or falls to elevation 7.5 feet, the gates become stationary.

When the headwater elevation falls to 7.0 feet, the gates begin to close.

The automatic operating mechanism positions the gate in such a way that the gate opening is inversely proportional to the headwater elevation. The non-linear relationship between the gate opening and the headwater elevation is such that the design discharge is the maximum that will pass the structure. Greater flows reaching the structure are retained in storage. Should the storage be insufficient to retain the entire inflow, either the structure will be overtopped, or control must be placed on manual operation and flows larger than the capacity released.

FLOOD DISCHARGE CHARACTERISTICS

	Design	Standard Project Flood
Discharge Rate	3390 cfs	3390 cfs
	60 % SPF	100 % SPF
Headwater Elevation	7.2 feet	9.0 feet
Tailwater Elevation	4.7 feet	5.5 feet
Type Discharge	Uncontrolled submerged	Controlled submerged

DESCRIPTION OF STRUCTURE

Type reinforced concrete, gated spillway

Weir Crest

Net Length 50.0 feet

Elevation 0.0 feet

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Service Bridge Elevation 11.5 feet

Water Level which will by-pass structure 11.5 feet

Gates

Number 2

Size 6.6 ft. high by 25.8 ft. wide

Type vertical lift

Bottom elevation of gates full open 8.2 feet Normal 13.4 feet Maximum

Top elevation of gates full closed 7.5 feet

Control On-site, automatic headwater control with differential water level override sensed by bubbler system and remote computer control

Normal power source commercial electricity

Emergency power source LP gas engine driven generator

Type Hoist direct drive electric motor connected to gear box and gate stems

Date of Transfer: August 9, 1961

ACCESS: In Palm Aire

HYDRAULIC AND HYDROLOGIC MEASUREMENTS

Water Level Remote digital headwater & tailwater recorders

Gate Position Recorder Remote digital recorders on all gates.

Rain Gauge: Remote, digital recorder

DEWATERING FACILITIES

Storage beams at West Palm beach Field Station, needles at Miami Field Station

Type Steel needles beams and vertical aluminum needles

Size and Number (per bay)_____

Upstream and Downstream

Number -1 beam; needles, 5 @ 4', 1 @ 3', 1 @ 2' wide

Size -beam 33WF200 with 24" flange end sections, length 26' -11", needles 20' long

NOTE: If uncontrolled, probably submerged, but possibly free.

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